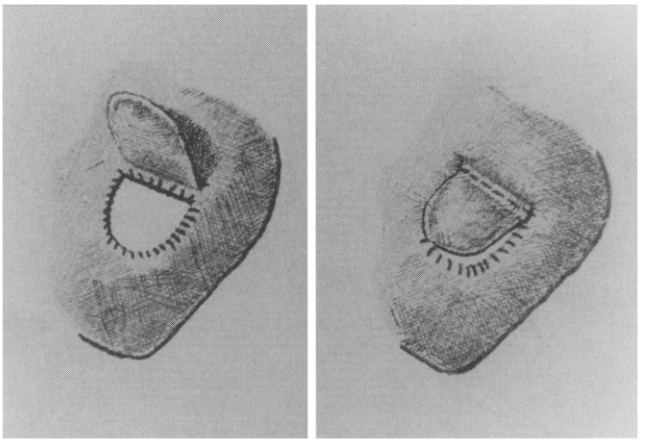

Fig. 1. One-way, valved, atrial septal patch. (From Luluaga IT, Yosifides de Luluagi I. Cierre gradual de las communicaciones interauriculares con severa hypertensión pulmonar: presentación de dos casos operados. Arch Fund Roux-Ocefa 1969;3:101-4; published with the permission of Roux-Ocefa Foundation.)

5. Williams TJV, Salamonsen RF, Snell G, et al. Preliminary experience with inhaled nitric oxide for acute pulmonary hypertension after heart transplantation. J Heart Lung Transplant 1995;14:419-23. J THORAC CARDIOVASC SURG
12/8/69341

Reply to the Editor:

The observations described by George, Black, and Boscoe are interesting. They appear to corroborate the beneficial effects of nitric oxide that my colleagues and I described—reduction of acutely increased pulmonary vascular resistance after cardiopulmonary bypass (CPB) during implantation of a left ventricular assist system (LVAS).

We would like to comment specifically on their question about the 30-minute delay that we observed before the beneficial effect of nitric oxide administration became apparent.

We agree that nitric oxide administration is followed by a rapid (i.e., <5 minutes) decrease in pulmonary vascular resistance. In fact, we observed a rapid decrease in pulmonary artery pressure. However, inasmuch as our patient was supported by CPB, right ventricular preload was reduced, so that the LVAS could not fill completely and LVAS output was thus unable to increase significantly. However, peak LVAS filling volume rapidly increased, which confirmed that the patient's hemodynamic status had improved. After almost 30 minutes the situation appeared to be stable, with no further decrease in pulmonary vascular resistance or increase in pump filling rate. We completely agree that this beneficial effect was a combination of nitric oxide administration, which reduces right ventricular afterload, and possible recovery of right ventricular function as a result of prolonged CPB. This was precisely what we hoped to achieve by waiting 30 minutes with the patient supported by complete CPB. Nevertheless, when CPB support was progressively reduced, so that right ventricular preload increased, the beneficial effects of a reduced right ventricular afterload became evident, as indicated by satisfactory LVAS output.

Regarding the problem of demonstrating the beneficial effects of nitric oxide administration, we took great care to maintain an appropriate nitric oxide concentration when the patient was transported to the intensive care unit or when the cylinder was changed.

Finally, George, Black, and Boscoe expressed concern regarding the poor prognosis of bridge to transplantation with an implantable LVAS alone in patients requiring nitric oxide administration. We still believe that this therapeutic approach allowed us to reduce the increase in pulmonary vascular resistance resulting from CPB, thus affording the possibility for progressive right ventricular recovery. This apparently was the case with our patient, who underwent successful transplantation 3 months after LVAS implantation.

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12/8/69340

Valved atrial septal patch

To the Editor:

I read with interest the article of Ad and associates[1] from the Beilinson and Tel-Aviv Medical Centers on their experimental results achieved with a one-way, valved, atrial septal patch. The patch was to be used in the management of postoperative right heart failure in patients with congenital heart defects characterized by hypoplastic right ventricle or pulmonary hypertension. At the end of the article they suggested that a prospective clinical trial should be done.

In 1967, Luluaga and Yosifides de Luluaga[2] performed a similar operation to treat atrial septal defect with severe pulmonary hypertension in two patients, with uneventful recovery. The photograph of the patch (Fig. 1) is similar to that used in dogs by Ad and associates.